one of his latest works, "The Pluralistic Universe," still further showed, he himself was in spirit an ethical idealist to the core. Nor was he nearly so far in spirit even from Hegel as he supposed, guiltless as he was of Hegel's categories. Let a careful reading of the "Pluralistic Universe" make this fact manifest.

Meanwhile, what interests us is that, in "The Will to Believe," as well as in "The Pluralistic Universe," this beautifully manifold, appreciative and humane mind, at once adequately expressed, and, with true moral idealism transcended the caprices of recent American ethics. To this end he lavishly used the resources of the naturalist, of the humanist, and of the ethical dialectician. He saw the facts of human life as they are, and he resolutely lived beyond them into the realm of the spirit. He loved the concrete but he looked above towards the larger realm of universal life. He often made light of the abstract reason, but in his own plastic and active way he uttered some of the great words of the universal reason, and he has helped his people to understand and to put into practise these words.

I ask you to remember him then, not only as the great psychologist, the radical empiricist, the pragmatist, but as the interpreter of the ethical spirit of his time and of his people—the interpreter who has pointed the way beyond the trivialities which he so well understood and transcended towards that "Rule of Reason" which the prophetic maxim of our supreme court has just brought afresh to the attention of our people. That "Rule of Reason," when it comes, will not be a mere collection of abstractions. It will be, as James demanded, something concrete and practical. And it will indeed appeal to our faith as well as to our discursive logical processes. But it will express the transformed and enlightened American spirit as James already began to express it. Let him too be viewed as a prophet of the nation that is to be.

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HOWELL'S RELIEF MAPS AND THE NATURALISTIC LAND MODEL

THE death of Edwin E. Howell removes one well known among those connected with earth studies in this country, who will be greatly missed.

As stated by Dr. G. K. Gilbert in the May 12th issue of SCIENCE, Howell was the pioneer for the United States in the modeling of relief maps. As his work is the most widely distributed and best known of any in American institutions and has greatly influenced the prevalent conception of the subject, a brief analysis of it may be of interest.

Howell made the best and most ornamental relief maps we have. They were true to the maps which were represented, and were finished and lettered in an exceptionally decorative style. Dr. Gilbert mentions that Howell's work "was not distinguished for its artistic quality." The use of the term "artistic" is frequently misleading. Howell's work certainly showed skillful craftsmanship and "finish." For many years he employed an expert whose lettering was the most elaborate to be found on relief-map work. Dr. Gilbert further states that the work was "realistic wherever the material from which he worked was full." In one instance where a relief containing a breakwater was made, an actual specimen of rock taken from the stone foundation was introduced; this was realism but not "naturalistic," both the scale of detail and the material were not in keeping with the rest of the work.

"Naturalistic" is the term applied to the truthful reproduction of natural topography as distinguished from the conventional or diagrammatic map-method. The most obvious difference in the two classes of work is that the naturalistic gives the appearance as

well as dimensions of the place represented. The naturalistic principle calls for rational procedure throughout, toward the end that the result shall not only reproduce shapes and measurements, but characteristic expression of the land as well. The procedure must be rational according with natural laws, to bring about naturalistic results.

The subject of the representation of the earth's surface in relief is to-day little generally understood. It is one with a dual basis, the earth sciences on one hand, with the principles and application of art on the other. As paleobotany rests on both geology and botany, so the subject of land representation in relief has its rational basis on a knowledge of the lands and the principles and applications of landscape art. Each place chosen for representation in relief is a subject in natural history presenting a problem whose rational solution as such depends upon a comprehensive study of the locality with its meaning and possibilities as representative of earth form, and an adequate treatment as such natural phenomena or landscape, throughout the entire process of modelling and coloring. Simple and reasonable as may be this view little application of it seems to have been made in the land relief work produced in this country. Without a conception of the naturalistic basis as a guide, the mechanical turning of map data into a raised form, however accurate and complete the process may be, is machine-like drudgery. With the naturalistic conception which has been rarely well appreciated by those not versed in the motives of art, the work becomes rational and definite. Each subject under this light is a problem involving natural phenomena, whose adequate solution requires deduction from field observation applied to the special requirements of the work, with due recognition of the established principles of good art.

Relief maps are plentiful, but as yet naturalistic models of land forms are scarce. (In our museums there are few specimens of naturalistic earth models. Neither the government Geological Survey nor the National Museum has yet undertaken or exhibited this class of work. In the United States, geology and geography are to-day practically without natural history specimens of their greater forms.)

Howell was a man whose fortune it was to be little troubled with artistic sensibilities, his work in land relief could be compared to that of an anatomist engaged in making anatomical models, indeed he dealt in this work, and his product played quite the same relation to figure sculpture that relief maps bear to naturalistic models.

Relief maps in the making of which Howell stood at the head, have their place, but they do not fulfill that of the naturalistic model and the two distinct principles of work which each represents need not be confused. The raised or relief map is a form of diagram, a conventional representation of topography made by raising the signs on a map into relief, as indicated by its symbols. It is mechanical and can be largely produced by a machine. In the French military service it is so done. The purpose of the naturalistic model is to represent nature, not maps; it corresponds to figure sculpture and landscape painting, and aims to give not only correct dimensions, but a character and likeness of the special part of the world represented. The raised map is like the engineering diagram, special and very limited in its application. The naturalistic model contains all the data of the relief map and much more in addition, and its fields of use and influence is correspondingly broader.

Had Howell been an artist-naturalist as well as geologist, his work must have developed along different channels, for the naturalist mind will not be satisfied with the diagram as a representation of the expressive surface of the earth. That Howell tried to satisfy his clients, who, as Dr. Gilbert writes, "were numerous among the investigators and teachers of geology and geography," is without doubt, and had this influence been that of men well versed in art or its applications as in architecture, landscape gardening, sculpture or painting, it must have tended to direct his work toward a naturalistic conception.

The men who have done most to develop the subject of representation in land relief have invariably had artistic instincts and training as well as a technical knowledge of earth form. Professor Albert Heim, the most eminent geologist of Switzerland, an artist by disposition, may be regarded as the world's pioneer in the rational interpretation of relief work on the lands and the principles of naturalistic earth representation. Schrader, of Paris, geographer and artist, has contributed to the progress; Imfeldt, engineer and artist, has produced remarkable work among the mountains of Europe. Had Professor W. H. Holmes brought his own rare geologic and artistic ability to bear on this subject there is little doubt that the United States would today stand high in the work that has been produced in the most accurate, complete, and expressive means for representing the face of our earth, the naturalistic land model.

G. C. CURTIS

BOSTON,
June 1, 1911

A FUND FOR PUBLIC SCHOOL BETTERMENT IN PITTSBURGH

Two years ago a generous friend of education placed in the hands of a small commission a fund of $250,000, the income from which was to be used for public school betterment in the city of Pittsburgh of which Dr. John A. Brashear is chairman. The commission sought and obtained the advice of many of the foremost educators as to best means of helping the grade schools in the way of increased efficiency, with particular reference to the betterment of the social, physical and moral improvement of the students, as also their preparation for life's work.

As a result of many conferences, it was decided to send 70 selected teachers to various summer schools in this country with instructions to take only those studies which tended to greater efficiency in the lines above noted, and at the same time to conserve their own health by combining rest and recreation with their summer courses. As a result very interesting and valuable reports were brought back by at least 85 per cent. of those who were sent away for study, and the school year just passed has demonstrated the fact that the teachers came back with increased enthusiasm and a desire to share the benefits derived from their studies with their fellow teachers.

With such satisfactory results from last year's labors, the commission decided upon the same general plan for this year—and after a most careful study of the nearly 500 applicants for scholarships—from the 1,700 teachers of the city—one hundred and thirty-five have been selected and will be sent to the following institutions:

Columbia University	21
Harvard University	21
Cornell University	11
University of Pennsylvania	4
University of Chicago	6
Chautauqua	13
Pennsylvania State College	2
University of New York	3
Grove City College, Pa.	5
University of Pittsburgh	
Long term	8
Short term	35
Chicago School of Applied Arts	1
New York School of Applied Arts	1
New York School of Philanthropy	1
New York Kindergarten College	1

With a surplus of the fund left over from last year the commission has organized a vocational bureau to look after the interests of the boys and girls who must leave the grade schools to earn a livelihood which promises so well that we hope to show its great value to the new school commission, which will take charge of our public schools on the first of January, 1912, and induce the commission to make it an integral part of the public school system.

Associated with this, though not directly connected with it, a hospital school for the study of defective children has been doing splendid work.

HONORARY MEMBERS OF THE AMERICAN PHYSICAL EDUCATION ASSOCIATION

THE American Physical Education Association at its recent meeting passed the following minute: